## REMARKS

The present Amendment amends claims 2, 6, 10, 13, 17, and 21 and leaves claims 3-5, 7-9, 11, 12, 14-16, 18, 19, 22 and 23 unchanged. Therefore, the present application has pending claims 2-19 and 21-23.

Claims 2-19 and 21-23 stand rejected under 35 USC §103(a) as being unpatentable over McCloghrie (U.S. Patent No. 6,035,105) in view of Chen (U.S. Patent No. 6,392,997). This rejection is traversed for the following reasons. Applicants submit that the features of the present invention as now more clearly recited in claims 2-19 and 21-23 are not taught or suggested by McCloghrie or Chen whether taken individually or in combination with each other as suggested by the Examiner. Therefore, Applicants respectfully request the Examiner to reconsider and withdraw this rejection.

Amendments were made to claims 2-19 and 21-23 to more clearly describe features of the present invention not taught or suggested by any of the references of record whether taken individually or in combination with each other.

Particularly, amendments were made to claims 2-19 and 21-23 to more clearly recite that the present invention provides a packet communication apparatus and method for transmitting a packet from a first network comprising a first Virtual Private Network (VPN) to a second network comprising a plurality of VPNs, wherein the packet includes a destination internet protocol (IP) address, and a first VPN identifier used to compose the first VPN in the first network.

According to the present invention the packet communication apparatus includes a packet generating unit which generates a second VPN

identifier used to compose one of the plurality of VPNs in the second network based on the destination IP address and the first VPN identifier, and a transmitter which transmits a packet having added thereto the second VPN identifier.

The unique features of the present invention, for example, as recited in each of the claims are generating the second VPN identifier used to compose one of the VPNs in the second network based on a destination IP address and the first VPN identifier. By using the above described features of the present invention, packets can be transferred in the VPN composed over the two networks so as to be prevented from mixing with packets belonging to other traffic (see the present application on page 6 line 38-41).

The above described features of the present invention are not taught or suggested by any of the references of record whether taken individually or in combination with each other. Particularly, the above described features of the present invention as now more clearly recited in the claims are not taught or suggested by McCloghrie or Chen.

It should be noted that numerous arguments were present in the Remarks of the July 14, 2006 Amendment and in the January 22, 2007 Response, said arguments being incorporated herein by reference.

McCloghrie discloses local area network (LAN) switch interworking between virtual local area networks (VLAN's) by using a VLAN management identifier (ID) (see McCloghrie's spec. col. 4 line 62 – col. 5 line 4).

Chen discloses interconnected IP networks that route packets based on an IP address (see Chen's spec. col. 4 line25-31 and col. 5 lines 2-13).

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McCloghrie discloses VLAN technology which identifies the outgoing tag by using only database 205, wherein the database includes only correspondence information of VLAN management IDs (specific Layer 2 information) of different VLANs (see McCloghrie's spec. col. 4 line 62 - col. 5 line 4). However, Chen discloses basic IP routing technology which identifies the outgoing port based on IP address (typical Layer 3 information) which is well known as basic "routing" (see Chen's spec. col. 4 line 25-31, col. 5 line 2-13).

Thus, each of McCloghrie and Chen identifies the destination of data by using only Layer 2 or Layer 3 information, and each information is sufficient for each technology to transmit data. Furthermore, IP routing as taught by Chen is a basic technology for IP network interworking, and VLAN is an enhanced technology that allows a network to identify the destination of data without Layer 3 information (see McCloghrie's VLAN management IDs table 205). Therefore, considering the objective and intent of these different technologies, there is neither motivation nor suggestion for combining basic IP technology and enhanced VLAN technology in the manner suggested by the Examiner in the Office Action. In fact, these different technologies teach away from each other and as such cannot be easily combined in the manner suggested by the Examiner in the Office Action.

Accordingly, Applicants again hereby submit that McCloghrie cannot be combined with Chen in the manner suggested by the Examiner in the Office Action.

However, even if McCloghrie is combined with Chen in the manner suggested by the Examiner in the Office Action, the combination still does not

teach or suggest any unit and any step for generating the second VPN identifier based on the destination IP address and the first VPN identifier as in the present invention as recited in the claims.

McCloghrie only teaches a VLAN management ID table 205 the use of which by the switch determines the outgoing VLAN management ID (= VLAN tag) based on only incoming VLAN management ID, whereas Chen only teaches basic IP routing technology in which the router determines the destination based on only destination IP address.

Thus, it is quite clear from the above that each of McCloghrie and Chen are not directed to solve the problem to which the present invention is directed.

The Examiner should note that Applicants have examined the problems which arise when a VPN is composed over a plurality of ISP networks as discussed in the Background of the Invention section of the present application in the passage beginning on page 1, line 26 through page 2, line19. One of problems identified by Applicants is that if the capsule header (=the first VPN identifier) given in the previous network so as to compose the VPN is removed in the process of retrieving the IP address, the packets in the VPN become mixed with packets in other networks in the interwork router. Once the interwork router removes the capsule header of packets, receiving ISP cannot distinguish the packet from the other packets if the packet has the same address as those of other packets.

The present invention as recited in the claims solves this problem by having the interwork router generate the second VPN identifier

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based on not only the destination IP but also the first VPN identifier. Such features are clearly not taught or suggested by McCloghrie.

As per the above McCloghrie discloses VLAN technology in Layer (L)2 networks where the LAN switch identifies the outgoing VLAN tag by using the information of the incoming VLAN tag. Chen discloses basic IP routing that a router terminates L2 and retrieves routes to identify output port based on L3 information. As known L2 or L3 information is sufficient for each technology to transmit data. However, the particular problem to which the present invention is directed does not occur in the networks as taught by each of McCloghrie and Chen. Thus, both cited references fail to teach or suggest a method or apparatus that solves the problems to which the present invention is directed

As is well understood by those of ordinary skill in the art, packet communication has to follow the OSI reference model. If packet communication does not follow the OSI reference model, the packet will not be communicated accurately. Following the OSI reference model, a router as taught by Chen terminates L2 and retrieves routes to identify an output port based on L3 information. Also following to the OSI reference model, the LAN switch as taught by McCloghrie changes the first VLAN tag to the second VLAN tag. Thus, Both cited references clearly describe that they only follow to the OSI reference model.

However, contrary to the teachings in McCloghrie and Chen, the present invention does not follow the OSI reference model accurately. As described in the present application in order to solve the problem to which the present invention is directed, according to the present invention the interwork

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router retrieves routes and generates the second VPN identifier based on the first VPN identifier and the destination IP address and terminates input L2 and adds the second VPN identifier (=terminates output L2).

Thus, unique to the present invention as recited in the claims, the interwork router violates the border of L2 and L3, in otherwords does not follow the OSI reference model accurately.

One of ordinary skill in the art at the time the present our invention was made, would not consider or even propose violating the border of the layers of the OSI reference model. Such is confirmed by viewing the subject matter as set forth in the cited references, namely McCloghrie and Chen being that they both only follow the OSI reference model. Accordingly, both McCloghrie and Chen teach away from the features of the present invention as recited in the claims.

Thus, both McCloghrie and Chen fail to teach or suggest a packet communication apparatus and method for transmitting a packet from a first network comprising a first Virtual Private Network (VPN) to a second network comprising a plurality of VPNs, wherein the packet includes a destination internet protocol (IP) address, and a first VPN identifier used to compose the first VPN in the first network as recited in the claims.

Further, both McCloghrie and Chen fail to teach or suggest <u>a packet generating unit which generates a second VPN identifier used to compose one of the plurality of VPNs in the second network based on the destination IP address and the first VPN identifier</u> as recited the claims.

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Still further, both McCloghrie and Chen fail to teach or suggest a transmitter which transmits a packet having added thereto the second VPN identifier as recited in the claims.

Therefore, since both McCloghrie and Chen suffer from the same deficiencies relative to the features of the present invention as recited in the claims, combining McCloghrie and Chen in the manner suggested by the Examiner in the Office Action still fails to teach or suggest the features of the present invention as now more clearly recited in the claims and as such does not render obvious the claimed invention. Accordingly, reconsideration and withdrawal of the 35 USC §103(a) rejection of claims 2-19 and 21-23 as being unpatentable over McCloghrie in view of Chen is respectfully requested.

The remaining references of record have been studied. Applicants submit that they do not supply any of the deficiencies noted above with respect to the references utilized in the rejection of claims 2-12.

In view of the foregoing amendments and remarks, applicants submit that claims 2-19 and 21-23 are in condition for allowance. Accordingly, early allowance of claims 2-19 and 21-23 is respectfully requested.

To the extent necessary, the applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, or credit any overpayment of fees, to the deposit account of MATTINGLY, STANGER, MALUR & BRUNDIDGE, P.C., Deposit Account No. 50-1417 (501.37526CX1).

Respectfully submitted,

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